

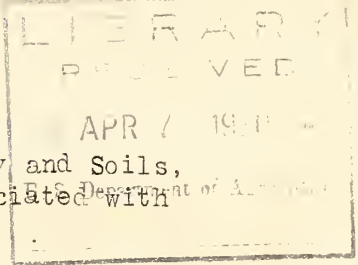
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MAKING THE MOST OF FERTILIZERS

A radio talk by Dr. Oswald Schreiner, Bureau of Chemistry and Soils, delivered through Station WRC and 35 other stations associated with the National Broadcasting Company, March 24, 1930.



The use of chemical fertilizers is one of the best means of increasing productivity and improving soil fertility. At present as much as seven and a half million tons of commercial fertilizers are being used annually on different crops, representing an expenditure of about 250 million dollars on the part of the farmers of the United States.

If all of this fertilizer were sold in bags, and most of it is, it would take nearly a hundred million of them, one for every man, woman and child in the United States. Laid end to end, these bags would stretch twice around the world, or placing them side by side they would pave a highway broad enough for four automobiles to drive abreast across the United States from coast to coast and still leave a little room for the pedestrian to dodge the cars.

And while I am speaking about these fertilizer bags, let me remind you that each one is stamped with the guaranteed analysis of the fertilizer in plant food, the amount of nitrogen, phosphoric acid and potash which the fertilizer contains. Buy your fertilizer with the assurance that this analysis gives you. Never buy by a trade name alone. Always buy on the basis of guaranteed plant food analysis if you want to get your money's worth.

Now the point is that this big fertilizer industry that is selling you 250 million dollars worth of fertilizer a year, has grown up because the best farmers of the country know that it pays them to use fertilizers. Someone has conservatively estimated that for every dollar invested in fertilizer the average return is about three dollars. But we can get a lot more if the right kind of fertilizer is used in the right way.

Take pasture grasses for instance. It is easy by means of lime and complete fertilizers, not only to double or triple your yields but, what is more important even from a milk producing standpoint, to increase the protein, phosphorus and lime content of the grasses, resulting often in healthier stock, insuring against mineral deficiency diseases and nutritional abortion. The best way to get minerals into your farm animals is through their feed.

The same applies to the leguminous forage crops. You know that those are rich in protein, made out of the nitrogen which the clovers and the peas can get from the air, but the phosphorus and the potash and lime must come from the soil or from the added lime or fertilizer.

To increase the yield and also the mineral content, it pays to fertilize even these nitrogen fixing forage crops with lime and with fertilizer, say 150 pounds of superphosphate and fifty pounds of muriate of potash and to lime the soil according to necessity.

The proper use of fertilizer is one of the best ways, under present cost of production, to increase your farm income. Labor is high, and in general increased acreage is not as economically advisable as increased acre production. Your interest, taxes, cultural operations, and seed must be taken care of before your profit is assured.

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An acre of underfed plants, struggling for growth and reproduction, means not more, probably less, than an average yield, the price of which is absorbed to meet the foregoing items of expense. If any profit is to result, a higher yield must be secured.

It is therefore better to produce a high and profitable yield on less acreage, than an average yield on the full acreage. This is true of all crops. As far as fertilizer is concerned, there is as much economy in taking food away from your field plants, expecting them to yield well on what they can get from the soil alone, as there would be to curtail the food of your animals below maintenance requirements.

But you must not expect your fertilizer to work like magic and make up for every other shortcoming of your crop and soil, for poor unhealthy seed, inefficient spraying, for poorly plowed and cultivated land, for weed conditions, acid soil, eroded land, poor drainage and poor humus supply in your soil.

The efficiency of fertilizer is materially decreased when it is applied to soil that is too acid and in need of liming. Fertilizers will not take the place of lime, nor will lime take the place of fertilizer. Nor will fertilizer take the place of organic matter. Poor results attributed to fertilizers are often the result of lack of organic matter. Use manure to improve your soils and grow green manure when you cannot get stable manure and you will get better returns from your fertilizer. You know, stable manure furnishes nitrogen and potash, but gives best results if phosphate fertilizers are added to give proper balance.

The green manure crops are usually legumes and these you know extract nitrogen from the air, are little nitrogen fixing factories as it were, and you will save on the more expensive nitrogen fertilizers if you grow them, and it may be only necessary for you to supply the phosphate and potash.

To get the most out of your fertilizer, it should have a good physical condition, so that it can be properly distributed, that is, it should drill well. This is important, as a great many so-called fertilizer injuries to crops are due to faulty distribution.

With the newer synthetic fertilizer materials, this matter of physical condition is becoming increasingly more difficult and the scientists of the Department and of the industry are studying this question most exhaustively.

It is also true in general, that the more soluble a fertilizer is, the more available it is to crops. But on the other hand, the danger from injury is also greater the more soluble the fertilizer, or the more intimate the contact with the sprouting seed. Therefore, you must use some care to avoid injury when you drill your seed and fertilizer in the same operation. Drill fertilizer slightly to one side of the seed or under the seed, and make the drill mix it somewhat with the soil for safest results.

Now a word as to the amount of fertilizer to use. There is an amount that yields you the most profit. For a high-priced crop you can go to high amounts, but for low-priced crops only moderate expenditures in fertilizer will prove profitable.

You farmers in Maine find a ton of fertilizer per acre profitable for potatoes even in the rich loamy glacial soil of your northeast country, and you in Florida, farming on the more sandy soils, use as much as three tons of fertilizer for celery or lettuce. This large amount is applied in broken doses, but it pays good returns.

For the grains like wheat and corn, or sugar beets, the amount that can be economically used is much less, but two hundred pounds of superphosphate or a mixed fertilizer often give astonishing results.

The succulent vegetables, such as lettuce or celery, in general require a higher percentage of nitrogen in the fertilizer than crops where seed is valued especially, such as wheat or corn, where high phosphate is particularly indicated.

Such crops as are valued for their starch, as potatoes or sweet potatoes, are benefited by a higher percentage of potash.

When a crop has a tendency to run to weed or stalk with little fruit, this is the indication that a fertilizer containing a higher percentage of phosphate and potash should be used to counterbalance the nitrogen.

Too much nitrogen can delay maturity of the plant, while phosphate, and sometimes potash, hastens maturity. A proper balance of these fertilizer elements is necessary; the nitrogen for increased growth and yield, the phosphate and potash to control the ratio of root to stem, make the plant more resistant to some diseases and improve the plant's ability to fruit.

A fertilizer to be most effective must have its plant foods properly proportioned and this balance varies with different crops and different soil types. If a soil is deficient equally in two essential plant foods, no amount of the one will materially increase the yield until its essential running mate is also added. The real test of what a fertilizer can do is secured only when a complete fertilizer is used.

If you are not getting the most out of the fertilizers you are using on your land, talk first of all with your County Agent, write to your own Agricultural Experiment Station, which has made a study of your local soil and crop requirements or write to the United States Department of Agriculture for its special crop bulletins and let us help you solve your fertilizer problems.

For you town folks who may be listening in for a timely hint to improve your lawn, I will say that bone meal is always safe. For quick results, an application of a mixture of one part of ammonium sulphate and three parts of cottonseed meal right now when the grass is beginning to grow will give you plenty of exercise with the lawn mower a little later on. Use about a quart of the mixture for every 100 square feet and spread it evenly, preferably before a rain or sprinkle with the garden hose. Let us hear what results you get.



